APPLICATION FOR BLIND PERSON USING GPS NAVIGATOR

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ABSTRACT

God gifted sense to human being which is an important aspect in our life is vision. We are able to see the beauty of nature, things which happen in day-to-day life with the help of our eyes. But there are some people who lack this ability of visualizing these things. They face many difficulties to move on with their daily life. Current navigation system focuses on designing a device for visually impaired people that help them to travel independently also it must be comfortable to use.In this paper we have presented the design of thestick based navigation system for blind using GPS module and GSM module. The device is linked with a GPS to identify the location of the blind person. Moreover, it provides the voice alert to avoid obstacles based on IR sensor and label sensors. An emergency button (panic switch) is also added to the system. This project will help the blind people in improving their communication ability and not to depend on none during walking in even unknown areas.In this paper we give a special idea of Accident detection system. we provide the complete security of blind person in case of accident first off all my system provide perfect security by IR sensor if any vehicle/objects comes on front in certain region system automatically check the condition of accident and weep the buzzer.

KEYWORDS: GPS, GSM, IR sensor, Label sensor.

I. INTRODUCTION

As the technology is advancing day to day, the human machine interaction has become a must in our daily life. The primary objective of this work is to permit blind persons to explore autonomously in the outside environment .The proposed work is to use a stick including a GPS Navigator. Now a days a stick are used with some features but in our project we are using GPS module with some other advance features. This work goes for giving the route to blind person by designing a cost effective and more flexible navigation system. The proposed system consists of hardware and software. Here the components we are using are Microcontroller, Transformer, GPS module, etc. This project will help the blind people in improving their communication ability and not to depend on none during walking in even unknown areas. We are in the age of science and technology which have made our daily life easier and comfortable. We have got smartphones, smart watches, smart home appliances and this trend of smart world is ever growing. So using such smart technology we aim to help visually impaired people for navigation.

Blindness- is not just a medical condition but possesses the larger dimensions of social exclusion, stigma and neglect. Blind people are often taken by surprise by over-hanging branches, protruding air-conditioners and parked vehicles while navigating through unfamiliar terrain. According to the World Health Organisation, there are 285 million people estimated to be visually impaired worldwide and 90% of them live in developing countries. The main objective is to offer blind and visually impaired communities a smart device that gives them independent personal mobility outside the home. Smart blind stick is an innovative high-tech stick that will help visually impaired people to detect obstacles near them and navigate their way. This technology is set to make lives better for the visually impaired

human kind. The smart blind stick is integrated with ultrasonic sensor along with light and water sensing. This smart technology sends out ultrasound waves via a device attached to a standard white stick & it detects them on their return, and uses vibrations to inform users of any obstacles in their way. Department Electronics and Communication, Moradabad Institute of Technology

II.   BACKGROUND

2.1. Safety purpose

1st mode: In this mode we use IR proximity sensor for object sensing that provide proper path for walking. For this purpose we use lm-339 IC, vibration motor and microcontroller.
2nd mode: In this mode we use label sensor for object deep and stair places that provide proper path for walking. For this purpose we use lm-339 IC, buzzer and microcontroller.

2.2. Location finding

We use the panic switch that use in case of critical condition for blind person .In this case GPS connect to satellite and satellite send the latitude and longitude to GPS and system receive the longitude and latitude that send by GSM to particular no.

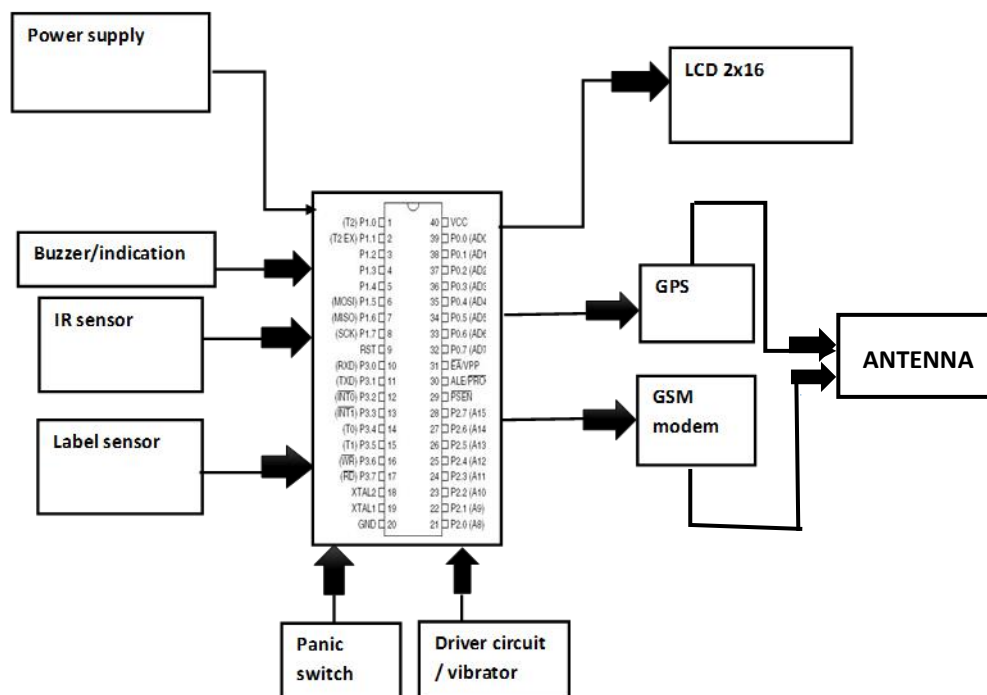## III.   PROPOSED METHODOLOGY

Proposed Model of the System

FIG 1.1: Block diagram of direction of blind person using GPS Navigator.

Working

A. Hardware Description

1.   Power supply

First of all to take 220 voltage ac terminal and to give the signal in step down transformer that step-down to 12 voltage ac supply, we use the centre-tape rectifier that convert in to dc 12 voltage, we use

7805 regulator IC that provide fixed five voltage .and we use the capacitor for remove the noise and occur in different case.

2. MICROCONTROLLER

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density non-volatile memory technology and is compatible with the industry-standard 80C51 instruction set and pinout. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non-volatile memory programmer. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications. The AT89S52 provides the following standard features: 8K bytes of Flash, 256 bytes of RAM, 32 I/O lines, Watchdog timer, two data pointers, three 16-bit timer/counters, a six-vector two-level interrupt architecture, a full duplex serial port, on-chip oscillator, and clock circuitry.

3. GPS and GSM MODULES

The Global Positioning System (GPS) and Global System for Mobile communications(GSM) are interfaced to the microcontroller to detect the blind person location. The main purpose of the GPS system is to find out the location of a person or vehicle. A GPS receiver affords an exact location of an object in terms of longitude and latitude and also provides timing services, positioning and reliable navigation to the users at anywhere and anytime on the earth. The GPS system operates independently of any telephonic or internet reception, though these technologies can enhance the usefulness of the GPS positioning information. The GPS system mainly uses 24-32 satellites to provide the data to the users. This system has become very important for worldwide navigation and it is useful for tracking, surveillance, way and map marking, and much more. A GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone. When a GSM modem is connected to a computer, this allows the computer to use the GSM modem to communicate over the mobile network. While these GSM modems are most frequently used to provide mobile internet connectivity, many of them can also be used for sending and receiving SMS and MMS messages.

4. OBSTACLE DETECTION

4.1. IR SENSOR
Infrared technology addresses a wide variety of wireless applications. The main areas are sensing and remote controls. In the electromagnetic spectrum, the infrared portion is divided into three regions: near infrared region, mid infrared region and far infrared region.
- Near infrared region — 700 nm to 1400 nm — IR sensors, fiber optic
- Mid infrared region — 1400 nm to 3000 nm — Heat sensing
- Far infrared region — 3000 nm to 1 mm — Thermal imaging

The frequency range of infrared is higher than microwave and lesser than visible light. An infrared sensor emits and/or detects infrared radiation to sense its surroundings. For optical sensing and optical communication, photo optics technologies are used in the near infrared region as the light is less complex than RF when implemented as a source of signal. Optical wireless communication is done with IR data transmission for short range applications.

4.2. PANIC SWITCH
In case of high emergency, if blind person press the panic switch system connect to satellite automatically and receive the proper longitude and latitude and display in LCD. System read this information and activate the GSM mode with the help at command and send the SMS to respective person of that location and warning.
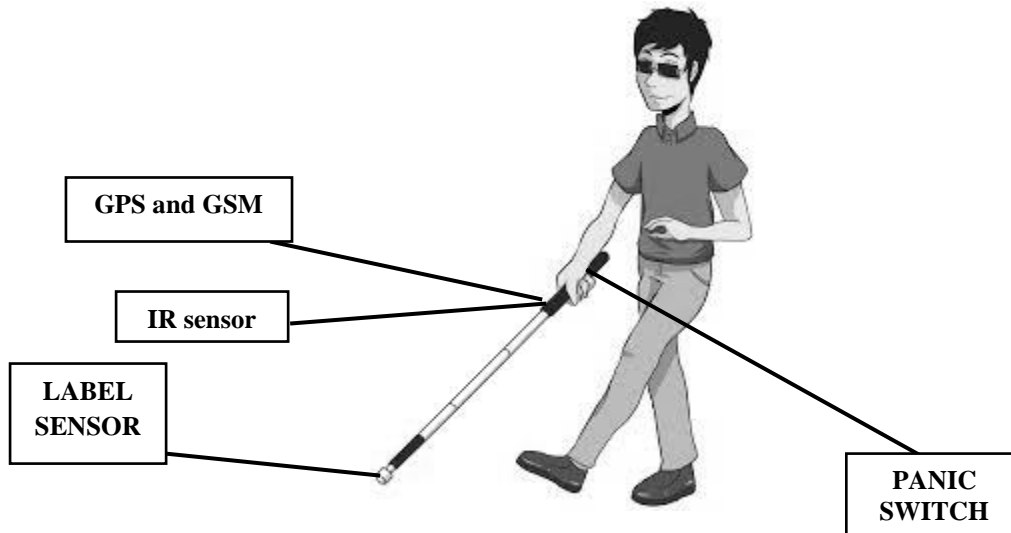
FIG 1.2:features of the stick.

B. Software used:

- Proteus software. For circuit designing.
- Kiel software. for coding

IV.   THE MAIN ADVANTAGES OF USING THIS SYSTEM

- Low Design Time.
- Low Production Cost.
- This system is applicable for both indoor and outdoor environment.
- Less space.
- Low Power Consumption.
- Auto detect

V.   APPLICATIONS

- This system can be used in the home, hospitals and colleges.
- This system can be used in both the known and unknown environment like airports,   and public parks etc.

VI.   FUTURE SCOPE

- This project can be extended by incorporating a GPS module.
- We can interface this module to send message to be near and dear once of the blind person regarding his/her current position.
- During so, we can track the moment of the blind person in a very efficient manner.

VII.   CONCLUSION

Blind stick is practically feasible product and convenient to carry around like any other walking stick. This reduces the dependency on other family members, friends while walking around. The proposed combination of various working units makes a real-time system that monitors position of the user and provides dual feedback making navigation more safe and secure.

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